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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,621	01/29/2002	Robert E. Warburton	02-135	3430

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EXAMINER

DUONG, THO V

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 08/13/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/058,621

Applicant(s)

WARBURTON ET AL.

Examiner

Tho v Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 12, 13, 27, 28, 33, 34 and 36-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-26, 30, 31 and 35 is/are rejected.
- 7) ☒ Claim(s) 29 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-36 are drawn to an invention of a heat exchange panel, classified in class 165, subclass 80.4.
- II. Claims 37-40 are drawn to an invention of a wall system, classified in class 165, subclass 53.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the wall system does not require that the heat exchanger to have the particulars of a first panel and a second panel and a fluid containment device sandwiched between the first and the second panels. The subcombination has separate utility such as a heat exchanger panel used in a wall system of claim 17 or in any electronic cooling environment.

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Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

This application contains claims directed to the following patentably distinct species of the claimed invention: The species are identified as the species of figures 1, 4,5 and 10, which relate to different embodiments of the heat exchanger panel. The species are also identified in figures 7, 8 and 9, which relate to different fuel injection systems. The species are also identified in the non-illustrated species of claims 35 and 36. The species are identified in the non-illustrated species of claims 32 and 33, which relates to the continuity of the panel structure.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1, 14 and 17 are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

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Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with Mr. Barry L. Kelmachter on 8/7/2003 a provisional election was made with traverse to prosecute the invention of group I, species of figures 1, 7, claims 32 and 35, claims 1-11, 14-26, 29-32 and 35. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12, 13, 27-28, 33-34 and 36-40 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: the reference number (54) is described on page 7, at line 4 in the specification but is not shown in the drawings. A proposed drawing correction or corrected drawings are required in reply to the Office action to

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avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As regarding claim 1, the claimed subject matter of "said fluid containment device not being attached to either of said first and second panels" render the scope of the claim indefinite, since it is not clear if applicant really wants to claim that the panels and containment device are not attached to each other. It is only described in the disclosure that the panels and the containment device are not fastened together but they still appear to attached (in contact) with each other.

Claim 31 recites the limitation "said coolant containment system" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 26 recites the limitation "said fuel inlet" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Wright et al. (US 5,899,077). Wright discloses (figure 1) a heat exchanger panel comprising a first panel (25), a second panel (21); and a fluid containment device (26) sandwiched between the first and second panels wherein the fluid containment device not being attached to either of the panels; each of the first panel and the second panels having an interior surface comprises a plurality of arched portions (22)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 14, 16-18, 23-25, 30, 31 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer (US 4,838,031) in view of Schmidt et al. (US 6,182,442). Cramer discloses (figures 1, 4, 9 and column 6, lines 10-37) a wall system that has a plurality of heat exchanger panels (26) aligned along a longitudinal axis of the wall system; each of the heat exchange panel comprising a first panel (42), a second panel (38), a fluid containment device (42) sandwiched between the first and the second panels wherein the fluid containment device

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not being fasten to either of the first and second panels; and a coolant containment system comprises a plurality of tubular passageways formed by the first panels and second panels (space between concentric inner panel and outer panel). Cramer does not disclose that the panels are made of carbon/silicon carbide composite material. Schmidt discloses (figures 1, 4 and column 5, lines 15-27) a wall system that has a heat exchanger panel, which has an inner panel (1) and an outer panel (2) being made of a composite material such as Carbon/Silicon Carbide to obtain a light weight, high thermal shock resistance, high thermal conductivity and low production costs heat exchanger panel. Since Silicon Carbide (SiC) also contains the element C, the Carbon/Silicon Carbide is also considered to read on the Carbon/Carbon composite material. As regarding claim 35, the limitation of “for use in a propulsion system” and “the propulsion system comprises a rocket engine” have been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

Claims 6-9,15,19-22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer, Schmidt as applied to claims 1,14 and 17 above, and further in view of Miller (US 6,042,315). Cramer and Schmidt substantially disclose all of applicant's claimed invention as discussed above except for the limitation of a composite fastener. Cramer further discloses (figures 2,4 and column 4, lines 37-43) that the heat exchange panel is fasten to a substrate (25) and a fuel nozzle (36) injecting fuel into a space (30) bounded by the wall system. Miller discloses (figures 2a and 5a) a composite material fastener (40) for fastening panel objects together wherein the fastener comprises a shaft (42) formed from a composite material, the shaft

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having a first bore (64), an external threaded metal sleeve (90) having an orifice for receiving a portion (one end) of the shaft, and a second bore (92) extending perpendicular to the orifice and a locking pin (65) which is inserted into the second bore and the first bore for securing the shaft to the metal sleeve with a threaded nut (94). The composite material fastener provides a fastener that utilizes its high-in plane strength while minimizing any stresses on the matrix of the material in fastening the panel objects together in high temperature environment. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Miller's teaching the combination device of Cramer and Schmidt to fastening the panels together in a high temperature environment.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer, Schmidt and Miller as applied to claims 17 and 25 above, and further in view of Shekleton (US 5,150,570). Cramer, Schmidt and Miller substantially disclose all of applicant's claimed invention as discussed above except for the limitation the fuel injecting means comprises fuel inlet conduit, manifold and plurality of injection nozzles. Shekleton discloses (figure 1) that a combustion chamber that has fuel injection means comprises a fuel inlet conduit (82), a manifold (80) and a plurality of nozzles (88,100) connected to the manifold to obtain a fuel injection system that may be fabricated with relative ease with out the need for highly complex, precision fabrication to minimize the cost of the system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Shekleton's teaching in the combination device of Cramer, Schmidt and Miller to obtain a fuel injection system that may be fabricated with relative ease with out the need for highly complex, precision fabrication to minimize the cost of the system.

Allowable Subject Matter

Claims 32 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Camarda et al. (US 4,838,346) discloses a reusable high temperature heat pipes.

Beyer et al. (US 6,202,405) discloses a wall construction for combustion chamber.

Standly D. Butler discloses a plurality of heat exchanger panels formed a wall of combustion chamber.

Butter (US 3,768,256) discloses a combustion chamber wall having a plurality of tubes forming on the wall.

Schenkel et al. (DE 4321393A1) discloses a scramble jet engine nozzle.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tho Duong whose telephone number is (703) 305-0768. The examiner can normally be reached on from 9:30-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet, can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703)308-7764.

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Any inquiry of a general nature or relating to status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0861.

Tho Duong

August 8, 2003.



Henry Bennett
Supervisory Patent Examiner
Group 3700